

COMPACT SRAM CELL INCORPORATING REFRACTORY METAL-SILICON-  
NITROGEN RESISTIVE ELEMENTS AND METHOD FOR FABRICATING

ABSTRACT OF THE DISCLOSURE

A compact SRAM cell that incorporates refractory metal-silicon-nitrogen resistive elements as its pull-up transistors is described which includes a semi-conducting substrate, a pair of NMOS transfer devices formed vertically on the sidewalls of an etched substrate by a metal conductor providing electrical communication between an  $n^+$  region in the substrate and a bitline on top, a pair of pull-down nMOS devices on the substrate connected to ground interconnects, and a pair of vertical high-resistive elements formed of a refractory metal-silicon-nitrogen and function as a load for connecting to Vdd. The invention further describes a method for fabricating such compact SRAM cell.